

CLAIMS

1. An optical bench for coupling light between an optical device and an optical fibre, the optical bench comprising an integral optical spot size converter and optical alignment
5 means for fixing the position of an initially separate optical device relative to the optical spot size converter so that, in use, light is coupled between the optical device and the optical spot size converter.
2. An optical bench according to claim 1, formed of a silicon material.
- 10 3. An optical bench according to claim 1 or claim 2, in which the spot size converter comprises a pair of waveguides, at least one of which is dimensioned so as to cause light preferentially to couple from one waveguide to the other as light propagates along the length of the waveguide.
- 15 4. An optical bench according to any preceding claim, in which the spot size converter comprises an upper waveguide having a reducing lateral taper along at least part of its length, vertically spaced a distance above a non-tapering lower waveguide.
- 20 5. An optical bench according to claim 4, in which the upper waveguide and lower waveguide are separated by a cladding region.
6. An optical bench according to any preceding claim, in which the optical alignment means is adapted to receive the optical device.
- 25 7. An optical bench according to any preceding claim, in which the optical alignment means is keyed for engagement with the optical device.
8. An optical bench according to any preceding claim, in which the optical alignment
30 means comprises at least one trench in the optical bench within which the optical device is to be located and one or more alignment grooves or ridges that cooperate with corresponding alignment ridges or grooves, respectively, formed on the optical device.
9. An optical bench according to any preceding claim, further comprising an integral

V-groove dimensioned to allow for the location of an optical fibre adjacent a facet of the spot size converter.

5 10. An optical assembly comprising an optical bench according to any preceding claim in combination with an optical device located on the optical bench, and an optical fibre, each of the optical device and the optical fibre being aligned with the spot size converter to provide coupling of light between the optical device and the optical fibre.

10 11. An optical assembly according to claim 10, in which the optical device is a semiconductor edge emitting waveguide device.

12. An optical bench or optical assembly substantially as shown in and/or described with reference to any of Figures 1 to 9 of the accompanying drawings.

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